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Margins and Costs in MARKETING FLORIDA SWEET CORN

U. S. DEPARTMENT OF AGRICULTURE
Agricultural Marketing Service
in cooperation with
Florida Agricultural Experiment Station

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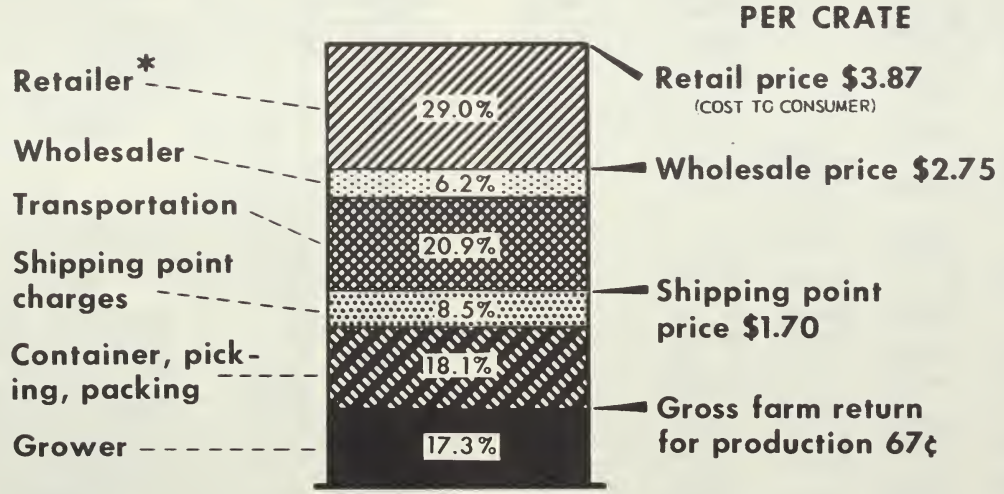
Farm-to-Retail; A Case Study

MARKETING MARGINS AND COSTS FOR FLORIDA SWEET CORN



*ALLOWANCE FOR WASTE AND SPOILAGE DEDUCTED

TYPICAL CAR OF U. S. FANCY GRADE SWEET CORN SHIPPED FROM FLORIDA TO BALTIMORE, MAY 1955

U. S. DEPARTMENT OF AGRICULTURE NEG. 4035-56 (3) AGRICULTURAL MARKETING SERVICE

Figure 1

MARGINS AND COSTS IN MARKETING FLORIDA SWEET CORN[1]

By W. Smith Greig and A. H. Spurlock, Agricultural Economists, Agricultural Marketing Service and Florida Agricultural Experiment Station, respectively

Because sweet corn is highly perishable, it must be moved from producing to consuming areas rapidly under refrigeration, at substantial cost. With the recent expansion of winter production in Florida, sweet corn has become a year-round commodity in many retail stores, which means production is widely distributed geographically and seasonally. Florida is now the leading State producing sweet corn for the fresh market, with shipments dominating many eastern markets from November to June.

Sweet corn, like other perishable vegetables, is seasonal in production in each producing area and subject to wide daily and seasonal variations in price. For example, on March 4, 1955, the f. o. b. shipping point price at Belle Glade, Fla., was $4.00 a crate for U. S. Fancy grade sweet corn packed 4-1/2 to 5 dozen ears to a standard crate, and $1.75 to $2.00 for smaller ungraded corn packed 5-1/2 to 6 dozen ears to a crate. On April 21, the price was $2.25 for Fancy grade and $1.40 for the smaller sizes. On May 11, the price was $1.50 for Fancy grade, and lesser quality corn was from $1.25 to $1.35 a crate; harvesting was heavy and demand so light that some harvested corn of all grades was not sold that day.[2] In some seasons the prices, even for the best grades, at some time may be so low as not to pay harvesting and selling costs and many fields may go unharvested. Despite the daily and seasonal variations in sweet corn prices, marketing costs remain relatively stable regardless of the price the farmer receives.

The purpose of this report is to illustrate the marketing costs and services involved in moving a car of sweet corn from the Belle Glade, Fla., area to retail consumers in Baltimore, Md., during the peak shipping season in May. The shipping point costs used in this illustration are based upon

[1]This study was conducted as a part of the Southern Regional Vegetable Marketing Project (SM-8) "Evaluation of Alternative Vegetable Marketing Organizations and Handling Methods." A more detailed report on many phases of marketing Florida sweet corn is to be published by the Florida Agricultural Experiment Station.

[2]Market news reports on dates indicated.

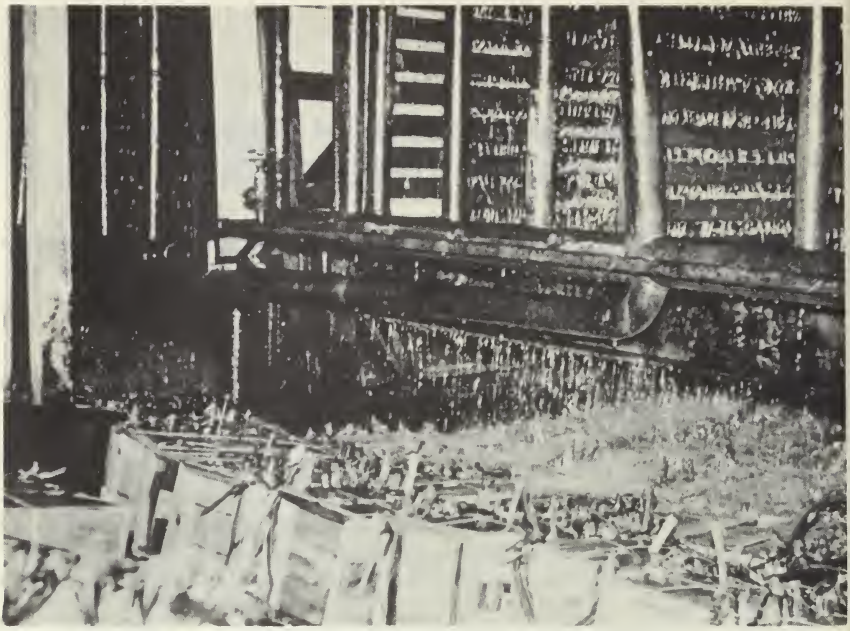


Figure 2.--Precooling: Crates of sweet corn passing through a large mechanical precooling unit. The corn, on a slowly moving continuous belt, is sprayed with cold water for approximately 30 minutes.

a study, conducted by the Florida Agricultural Experiment Station, of shipments of 2,200 carlots, and are typical of those in the Belle Glade area during April and May 1955. Transportation costs are based upon records obtained from more than 95 percent of the rail cars of sweet corn shipped to Baltimore during the 2 months. Wholesale and retail margins were obtained by daily observations during the 2 months, and from market news reports and by following specific lots of sweet corn through the marketing system from shipping point to the retail level.

The Florida producers and shippers know that rapid handling and refrigeration are necessary if high quality sweet corn is to reach the consumer. Once the corn reaches the best stage of maturity, it must be picked, packed, and cooled rapidly. After the initial cooling, it should be kept under refrigeration continuously.

An Example of Sweet Corn Marketing

Harvesting, Packing, and Shipping.--For purposes of illustration, let us assume that on May 6, 1955, a field of sweet corn had reached the optimum stage of maturity, and harvesting began. It is assumed also that the picking and packing of the sweet corn were done by a contractor who furnished a

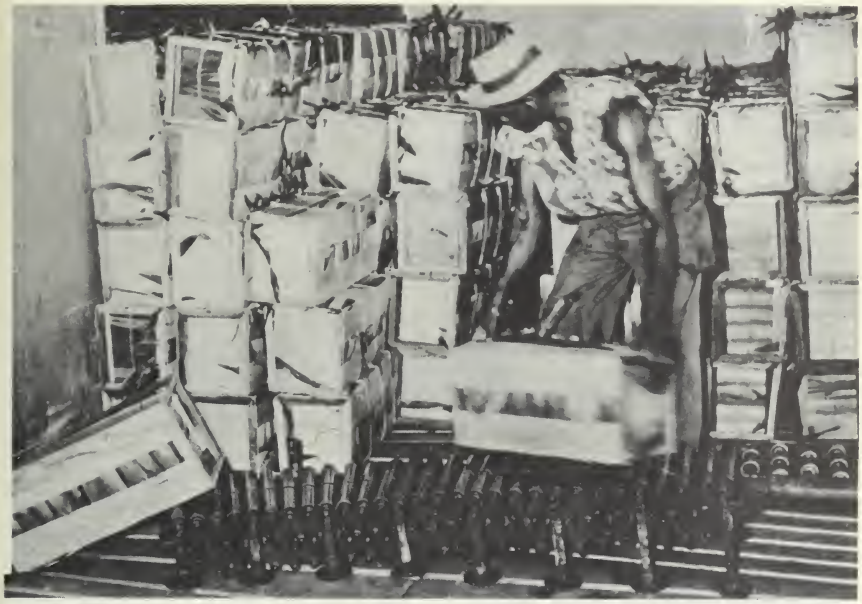


Figure 3.--Car loading: Stacking crates of precooled sweet corn in a refrigerated railroad car. Generally, 560 crates are loaded in a car.

crew and harvesting equipment to pick, pack, and haul the sweet corn to the shipper's shed at a flat rate of $.35 a crate.[3] The crew of more than 50 laborers harvested and packed nearly 250 crates an hour.[4] Large ears, comprising 80 percent of the harvested crop, were packed 4-1/2 to 5 dozen ears to a standard wirebound crate, the smaller ears 5-1/2 to 6 dozen to a crate. The crates cost the grower $.35 each. The corn was packed in the field and hauled by truck to the shipper's shed. A shipping organization handled the sales of the sweet corn for the grower under a contract arrangement.[5] When the corn arrived at the shed it was inspected by a Federal-State inspector, who found the corn packed 4-1/2 to 5 dozen ears to the crate to be U. S. Fancy grade, that packed 5-1/2 to 6 dozen ears to be U. S. No. 1 grade. The two grades (distinguished primarily by size and maturity differences) were handled as separate lots by the

[3] Contracting for harvesting is not unusual. The corn is harvested in two general ways: (1) Bin harvesting with tractor carts and (2) machine harvesting. Large shippers and growers often have machine harvesters.

[4] Crew size is not greatly different in the two methods of harvesting. Crew size is given as an indication of the specialization in the corn deal and the rapidity of harvest.

[5] Much of the Florida corn is sold through cooperatives or through private shipping firms. Either will handle the inspection, precooling, carloading, icing, and sales for the grower at specified rates per crate. Some large grower-shippers have their own facilities and do their own selling.

Figure 4.--Top icing: Blowing crushed ice on sweet corn in a loaded railroad car. From 8 to 10 tons of crushed ice are placed in each car.

shipping organization. Immediately after inspection, the corn was precooled. Most of the field heat was removed by cold water baths and sprays within 2 hours after the corn was picked.[6] The temperature of the corn was reduced from 86° F. to 52° F. by the 30-minute precooling operation.[7] The cost of precooling the corn was a flat charge of $.10 a crate.[8]

Immediately after precooling, 560 crates of the Fancy corn were loaded into a refrigerated rail car and 8 tons of crushed ice were placed on top of the crates. The cost of the top ice, $8 per ton or $64, was charged to the grower.[9] On the afternoon of May 6, the shipper sold the car of U. S. Fancy grade, 4-1/2 to 5 dozen ears to a crate, for $1.70 a crate f. o. b.

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[6] This is not a "special" case; it is mentioned to illustrate again the speed of handling.

[7] Typical of many tests made during the year. This is included because the cost of quality maintenance is stressed.

[8] Precooling of the early crop corn in south Florida normally costs from $.15 to $.20 per crate; in the Belle Glade area, for the bulk of the crop, $.10 is about standard.

[9] The seller of the corn at Belle Glade generally pays for 8 tons of top ice, and the buyer for any added amount he wants in the car. This arrangement is peculiar to sweet corn, and only at Belle Glade, in the Florida region. Therefore the top ice is included as a shipping point marketing cost. The growers and shippers have been trying to change this. In 1955, the market news reports quoted prices but specified that the buyer must pay for any top ice.

shipping point to a buyer at Belle Glade who was representing a Baltimore wholesale receiver. The U. S. No. 1 grade corn, packed 5-1/2 to 6 dozen ears to a crate, was sold later to another buyer at $1.35 a crate f. o. b. Belle Glade. The shipper charged the grower $.09 a crate for selling the corn.

By the time each car of corn was sold f. o. b. shipping point, each crate had cost the grower about $1.03. This included the following items:

Container	$0.35
Picking and packing	.35
Precooling	.10
Inspection	.023
Selling	.09
Top ice	.114
Total	$1.027 a crate[10]

After the harvesting and shipping-point marketing charges were deducted from the shipping-point selling prices, the grower received $.67 a crate for the U. S. Fancy grade and $.32 a crate for the U. S. No. 1 grade sweet corn.

As the marketing costs and margins from shipping point through the retail stores are similar for all grades, we will follow only the car of Fancy grade corn through the Baltimore market.[11]

Transportation Charges.--The corn was shipped on the afternoon of May 6, 1955, under standard refrigeration (ice in car bunkers) plus the 8 tons of top ice, and arrived in Baltimore 3 days later (12 noon, May 9, 1955). On arrival, the sweet corn was inspected by the Railroad Perishable Inspection Agency and by a representative of the wholesale receiver and found to be in excellent condition. The temperature of the sweet corn on arrival was 38° F.[12] The charges for transportation for the 560-crate car of corn from Belle Glade to Baltimore were:

Freight on corn	$327.49
Standard refrigeration	63.48
Freight on top ice	18.85
Taxes	42.03
Total	$451.88 per car or $.81 per crate[13]

[10] Typical of data obtained by the Florida Agricultural Experiment Station in the analysis of shipping-point marketing charges on 2,200 carlots of sweet corn shipped in 1954.

[11] Daily observations during April and May 1955 at the wholesale and retail levels in Baltimore gave some indication that the retail margins, both actual and percentagewise, were slightly higher for the grades of corn below U. S. Fancy.

[12] Typical of Baltimore data and that of previous tests conducted by the Quality Maintenance and Improvement Section, Agricultural Marketing Service.

[13] Charges on a 560-crate car of sweet corn with 8 tons of top ice and standard refrigeration. Railroad charges were obtained on 109 cars of sweet corn shipped to Baltimore in April and May 1955.

The costs to the wholesaler on arrival at Baltimore were $1.70 a crate for the corn and $.81 for transportation, a total of $2.51, not including his procurement costs.

Maintenance of quality alone (precooling, top ice, and standard refrigeration) cost $202.33 a car by the time it reached the wholesale receiver, or approximately $.36 a crate.

Wholesale Operations.--The railroad placed the car of sweet corn on a siding close to the wholesale market. The wholesaler trucked part of the corn to his place of business when the market opened that night. It was sold in various-sized lots to chainstore buyers, jobbers, and many independent retailers.[14] Delivery service was not provided by the wholesaler; the point of sale was "loaded on buyer's truck" at the wholesale market.

The price received by the wholesaler varies widely from day to day depending on supplies in the market. On this car of sweet corn, which was sold over a 3-day period, May 9-12, 1955, the wholesale receiver averaged $2.75 per crate. This provided a gross margin of $.24 a crate to cover his procurement and selling costs, the risk involved in price changes, and profits.[15]

The corn sold to chainstores was trucked to the chain warehouses and placed in refrigerated storage until it was divided into smaller lots and delivered to individual retail stores. The lots sold to independent retailers were taken by the retailers to their stores, where again they were placed in refrigerated storage.

Retail Operations.--Before the sweet corn was displayed for retail sale it was trimmed. The shank and tip ends were cut from each ear and a "window" was cut in the husks to show several rows of kernels. Some stores packaged three or more of the trimmed ears in cardboard trays overwrapped with transparent film. The trimming and packaging were time-consuming and expensive. To maintain quality, the corn was generally kept in the refrigerated storage room of the store until it was trimmed, then placed in a refrigerated display rack. In some instances, the trimmed corn was displayed for sale on chipped ice. Often, if the corn moved rapidly through the retail store, it was displayed without refrigeration.

In retail pricing, the retailers made allowances for some waste from imperfectly developed ears, for ears so large that a full five dozen could not be packed in a crate, and for reductions in price to move lots that deteriorated in quality. After allowance for these factors, each crate was considered to have, on the average, 56 salable ears of sweet corn.[16]

[14] Some Baltimore chains buy a large proportion of their supplies from the open wholesale markets; others obtain most of their supplies by direct shipment from the producing areas.

[15] The difference in the quoted Baltimore wholesale prices and Belle Glade shipping point prices was around $1 with about 4 days' lag. This varied widely.

[16] A large chain in Baltimore used this figure of 56 ears to the crate. With the large U. S. Fancy corn, minimum of 6-inch ears, it was hard to get a full 60 ears to the crate. With smaller ears in the lesser grades, there was usually more waste because of immature ears.

Figure 5.--Trimming at retail: Cutting a "window" in husks to show several rows of kernels before displaying at retail.

The variation in prices charged among the different retail outlets for sweet corn was quite large. Prices varied with type, size, and location of store, pricing policies, merchandising practices, "specials," day of the week, and many other factors. Corn from this car was sold at retail from May 10 to 14, 1955, at the following prices in six stores representative of retail outlets and practices in Baltimore:[17]

	Pricing unit	Price per dozen[17]
Store A	6 ears at $.39	$0.78
Store B	3 ears at .25	1.00
Store C (a "special")	6 ears at .29	.58
Store D	4 ears at .29	.87
Store E	4 ears at .29	.87
Store F	4 ears at .29	.87
Average price	--	.83

[17] From daily records obtained during April and May 1955 in Baltimore. This variability in prices among stores was not uncommon; often the range in prices was larger than this.

Allowing for 56 salable ears to the crate and an average retail price of $.83 a dozen, the retailers received $3.87 a crate. This yielded a retail margin of $1.12 a crate to cover costs of procuring, hauling, refrigerating, trimming, merchandising, and selling.

Estimated Marketing Costs and Grower Return per Crate

Return to producer		
Price received per crate, U. S. Fancy grade sweet corn packed 5 dozen ears to a standard crate, f. o. b. shipping point, Belle Glade, Fla. (loaded in 560-crate car, 8 tons top ice furnished), May 6, 1955		$1.70
Less marketing expense:		
Charges for inspection to establish official grade	$0.023	
Top ice (8 tons per car)	.114	
Shipping-point selling charges	.09	
Precooling	.10	
Total shipping-point marketing expense	$0.327	.33
Return to grower for packed sweet corn		$1.37
Less harvesting and packing expenses:		
Cost of standard container	$0.35	
Cost of picking and packing	.35	
		.70
Gross return to grower for production		$0.67
Return to wholesale receiver		
Price received per crate, Baltimore wholesale market (loaded on buyer's truck), May 9-12, 1955		$2.75
Less f. o. b. shipping-point price	$1.70	
Less transportation cost	.81	
		2.51
Gross return to wholesale receiver		$0.24
Return to retailer		
Retail sale value per crate (allowing for waste and spoilage) at Baltimore, May 10-14, 1955		$3.87
Less Baltimore wholesale cost		2.75
Gross return to retailer		$1.12

The Belle Glade grower received a gross return of $.67 per crate for this car of sweet corn shipped to Baltimore during the heavy shipping season. Out of the $.67, the grower had to cover all costs of production. After the costs of the container, picking, packing, and shipping point marketing charges were added, the f. o. b. shipping point price was $1.70 per crate. The wholesale selling price was $2.75 and the retail price was $3.87 per crate.

Estimated Distribution of Cost to Baltimore Consumers for Belle Glade Sweet Corn, May 10-14, 1955

	Dollars per crate	Percent of total
Gross return to farmer for production	$0.67	17.3
Container, picking, and packing	.70	18.1
Shipping point marketing charges	.33	8.5
Transportation	.81	20.9
Wholesaling	.24	6.2
Retailing	1.12	29.0
Cost to consumer	$3.87	100.0

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